

IN THE CLAIMS:

1. (Currently Amended) A close-wound coil comprising:

a first ~~predetermined~~ axis which extends along a center axis of the close-wound coil; and

a single wire which is wound spirally and closely over a predetermined length around the first axis, and has a center axis extending in the lengthwise direction thereof;

wherein the wire has a cross section ~~vertical~~ perpendicular to the center axis, a second axis ~~passing across bisecting~~ the center axis within the section and ~~vertical~~ perpendicular to the first axis, and a third axis ~~passing across bisecting~~ the center axis within the section and ~~vertical~~ perpendicular to the second axis;

the cross section of the wire is formed to have the second axis larger than the third axis~~the wire has substantially the same flexural rigidity as that of a reference wire having a perfect circle section with a diameter of the longer one of a dimension along the second axis and a dimension along third axis~~; and

when a flexural rigidity of the wire has a circular cross section with a diameter equal to an outside diameter in the direction of the second axis of the cross section, is formed homogeneously across an entirety of the circular cross section, and is formed substantially the same as a flexural rigidity of a first reference wire extending in the direction perpendicular to the cross section, the wire has a lower torsional rigidity than that of the first reference wire~~the torsional rigidity of the wire is lower than the torsional rigidity of the reference wire.~~

2. (Currently Amended) A close-wound coil comprising:

a first ~~predetermined~~ axis which extends along a center axis of the close-wound coil; and

a single wire which is wound spirally and closely over a predetermined length around the first axis, and has a center axis extending in the length direction thereof;

wherein the wire has a section ~~vertical~~ perpendicular to the center axis, a second axis ~~passing across~~ bisecting the center axis within the section and ~~vertical~~ perpendicular to the first axis, and a third axis ~~passing across~~ bisecting the center axis within the section and ~~vertical~~ perpendicular to the second axis, and

the section is formed to have the second moment of area concerning the second axis smaller than the second moment of area concerning the third axis.

3. (Currently Amended) A close-wound coil comprising:

a first ~~predetermined~~ axis which extends along a center axis of the close-wound coil; and

a wire which is wound spirally and closely over a predetermined length around the first axis, and has a center axis extending in the length direction of the first axis;

wherein the wire has a section ~~vertical~~ perpendicular to the center axis, a second axis ~~passing across~~ bisecting the center axis within the section and ~~vertical~~ perpendicular to the first axis, and a third axis ~~passing across~~ bisecting the center axis within the section and ~~vertical~~ perpendicular to the second axis, and

the section is formed to have ~~[[the]]~~ a dimension along the second axis larger than ~~[[the]]~~ a dimension along the third axis.

4. (Currently Amended) The close-wound coil according to claim 3, wherein, when the wire is formed in ~~[[has]]~~ substantially the same torsional rigidity as that of a second wire having a perfect circle cross section with a predetermined diameter, formed homogeneously in the same material as the wire across the entire perfect circle cross section,

and extending in a direction perpendicular to the cross section, the wire has [[and]] the flexural rigidity concerning the third axis larger than the flexural rigidity of the second wire having a perfect circle section.

5. (Currently Amended) The close-wound coil according to claim 3, wherein the wire has the flexural rigidity concerning the third axis substantially the same as the flexural rigidity of a third wire having a perfect circle section with a predetermined diameter, formed homogeneously in the same material as the wire across the entire perfect circle section, and extending in a direction perpendicular to the cross section, and the torsional rigidity lower than the torsional rigidity of the wire having a perfect circle section.

6. (Original) The close-wound coil according to claim 1, wherein the close-wound coil can be inserted into the channel of a medical endoscope.

7. (Currently Amended) A medical treatment tool having a distal end which is inserted into a body through an endoscope channel and a proximal end arranged outside the body comprising:

a close-wound coil having a distal end and a proximal end, the close-wound coil including;

a first axis extending through the distal end and proximal end;

a single wire which is wound spirally and closely over a predetermined length around the first axis, and has a center axis extending in the length direction thereof;

the wire having a cross section ~~vertical~~ perpendicular to the center axis, a second axis ~~passing across~~ bisecting the center axis within the section and ~~vertical~~ perpendicular to the first axis, and a third axis ~~passing across~~ bisecting the center axis within the section and ~~vertical~~ perpendicular to the second axis;

a rotation control section which is provided at the proximal end of the close-wound coil, for rotating the close-wound coil around the first axis; and

a treatment section which is located closer to the distal end than the close-wound coil, and receives the rotation force from the rotation control section through the close-wound coil;

the cross section of the wire is formed to have the second axis larger than the third axis; and

when a flexural rigidity of the wire has a circular cross section with a diameter equal to an outside diameter in the direction of the second axis of the cross section, is formed homogeneously across the entire circular cross section, and is formed substantially the same as a flexural rigidity of a first reference wire extending in the direction perpendicular to the cross section, the wire has a lower torsional rigidity than that of the first reference wire

the wire having substantially the same flexural rigidity as that of a reference wire having a perfect circle section with a predetermined diameter; and

the torsional rigidity of the wire being lower than the torsional rigidity of the reference wire.

8. (Original) The medical treatment tool according to claim 7, wherein the treatment section is fixed to the distal end of the close-wound coil.

9. (Original) The medical treatment tool according to claim 7, further comprising a control wire inserted movable forward and rearward into the close-wound coil, wherein the treatment section is fixed to the end of the control wire.

10. (Currently Amended) The medical treatment tool according to claim 7, wherein the treatment section has ~~has~~ a clip which can be retained in a living body.

11. (Original) The medical treatment tool according to claim 10, further comprising a second close-wound coil which is connected to the distal end of the close-wound coil, located between the treatment section and the close-wound coil, and has the inside diameter larger than the inside diameter of the close-wound coil;

wherein the clip is deformable between a first form fit to the distal end of the second close-wound coil and a second form stored inside of the second close-wound coil; and the length of the second close-wound coil is substantially the same as the axial direction length of the clip stored in the second form inside of the second close-wound coil.

12. (Original) The medical treatment tool according to claim 7, wherein the medical treatment tool can be inserted into the channel of a medical endoscope.

13. (Currently Amended) A medical treatment tool used in combination with a medical endoscope, comprising:

a mantle tube; and

a close-wound coil inserted into the mantle tube; the close-wound coil comprising;

a first axis extending between the distal end and proximal end, and

a wire which is wound spirally and closely over a predetermined length around the first axis, and has a center axis extending in the length direction thereof,

the wire having a section ~~vertical~~ perpendicular to the center axis, a second axis ~~passing across~~ bisecting the center axis within the section and ~~vertical~~ perpendicular to the first axis, and a third axis ~~passing across~~ bisecting the center axis within the section and ~~vertical~~ perpendicular to the second axis; the medical treatment tool further comprising;

a control section for rotating the close-wound coil with respect to the mantle tube;

wherein the cross section of the wire is formed to have the second axis larger than the third axis; and

when a flexural rigidity of the wire has a circular cross section with a diameter equal to an outside diameter in the direction of the second axis of the cross section, is formed homogeneously across the entire circular cross section, and is formed substantially the same as a flexural rigidity of a first reference wire extending in the direction perpendicular to the cross section, the wire has a lower torsional rigidity than that of the first reference wire-the wire has substantially the same flexural rigidity as that of a reference wire having a perfect circle section with a predetermined diameter; and

the torsional rigidity of the wire is lower than the torsional rigidity of the reference wire.

14. (Original) The medical treatment tool according to claim 13, wherein the endoscope has a channel, and the medical treatment tool can be inserted into the channel.

15. (Original) The medical treatment tool according to claim 13, wherein the mantle tube has flexibility.

16. (Currently Amended) A medical treatment tool for an endoscope used in combination with a medical endoscope having a slender channel, comprising:

a close-wound coil which can be inserted into the channel, the close-wound coil including;

a first axis extending between the distal end and proximal end; and

a wire which is wound spirally and closely over a predetermined length around the first axis, and has a center axis extending in the length direction thereof;

wherein the wire has a section ~~vertical~~ perpendicular to the center axis, a second axis ~~passing across~~ bisecting the center axis within the section and ~~vertical~~ perpendicular to the first axis, and a third axis ~~passing across~~ bisecting the center axis within the section and ~~vertical~~ perpendicular to the second axis, the medical treatment tool further comprising;

a control section which is provided in the close-wound coil and rotates the close-wound coil with respect to the channel;

wherein the cross section of the wire is formed to have the second axis larger than the third axis the wire has substantially the same flexural rigidity as that of a reference wire having a perfect circle section with a predetermined diameter; and

when a flexural rigidity of the wire has a circular cross section with a diameter equal to an outside diameter in the direction of the second axis of the cross section, is formed homogeneously across the entire circular cross section, and is formed substantially the same as a flexural rigidity of a first reference wire extending in the direction perpendicular to the cross section, the wire has a lower torsional rigidity than that of the first reference wire
the torsional rigidity of the wire is lower than the torsional rigidity of the reference wire.

17. (Original) The treatment tool for an endoscope according to claim 16, further comprising an extension control member placed in the close-wound coil.

18. (New) A close-wound coil comprising:

a first axis which extends along a center axis of the close-wound coil; and

a single wire is wound spirally and closely over a predetermined length around the first axis, and has a center axis extending in the lengthwise direction thereof;

wherein the wire has a circular cross section perpendicular to the center axis, a second axis bisecting the center axis within the section and perpendicular to the first axis, and a third axis bisecting the center axis within the section and perpendicular to the second axis;

the wire has a rigidity in the cross section which is formed by a non-homogeneous material and a rigidity in a central area along the third axis formed higher than the rigidity of both side areas; and

when a flexural rigidity of the wire is formed substantially the same as a flexural rigidity of a first reference wire which has a circular cross section with a diameter equal to the cross section, is formed homogeneously across the entire section of a perfect circle with the same material as the central area, and extends in a direction perpendicular to the cross section, the wire has a torsional rigidity lower than that of the first reference wire.